

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

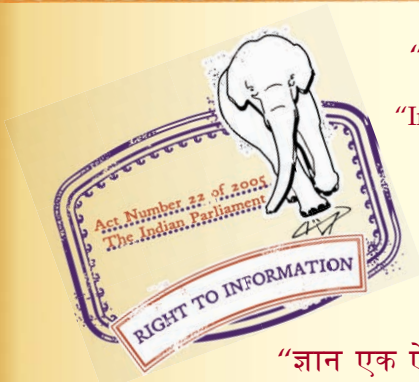
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 952 (2012): Fognozzle for Fire Brigade Use -
Specification [CED 22: Fire Fighting]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE



भारतीय मानक
फायर ब्रिगेड में प्रयोग होने वाले फाग नौजल — विशिष्टि
(दूसरा पुनरीक्षण)

Indian Standard
FOG NOZZLE FOR FIRE BRIGADE USE — SPECIFICATION
(*Second Revision*)

ICS 13.220.10

© BIS 2012

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BHADUR SHAH ZAFAR MARG
NEW DELHI 110002

June 2012

Price Group 3

NATIONAL FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Fire Fighting Sectional Committee had been approved by the Civil Engineering Division Council.

Fog nozzle is a type of hand controlled branch in which the operator can apply water to a heated surface of fire in the form of either a fog (fine mist) or a jet. The added advantage over other hand controlled branch is that water fog affects uniform cooling of the surface over which it is applied, the cooling effect is maximum and the water can be conserved. The throw from a fog nozzle is considerably reduced when it is used for the application of fog. If necessary, the operator can use an extension applicator, carrying a fog head at its end, which can be fitted to the fog nozzle. The application from the fog head is generally in horizontal direction, while the fog from the applicator head is applied in downward direction.

While using the fog nozzle, great care shall always be taken regarding operation of hand controls, particularly when shutting off. This shall be done gradually, as otherwise it may easily cause serious damage to hose and may also be a source of danger to the branchman and others in the vicinity.

This standard was first published in 1969 and revised in 1986. This revised standard give flexibility in the design covering essential dimensions and keeping requirements based on performance requirement. The present design is based on design developed so far. Stainless steel has also been recommended as material for components. Provision of copper alloy and aluminium branches for corrosion resistance has been incorporated.

The composition of the Committee responsible for the formulation of this standard is given in Annex B.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of specified value in this standard.

Indian Standard

FOG NOZZLE FOR FIRE BRIGADE USE — SPECIFICATION (*Second Revision*)

1 SCOPE

This standard lays down the requirements regarding material, shape, construction and performance tests for fog nozzle for fire brigade use.

2 REFERENCES

The standards listed in Annex A contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated in Annex A.

3 MATERIALS

3.1 Casting and Forgings

Casting and forging shall be made of any of the materials given in 3.1.1, 3.1.2 and 3.1.3.

3.1.1 Copper Alloys

Copper alloys used for casting or forging shall conform to the requirements given below:

Sand castings	: Grade LTB 2 of IS 318 or Grade HTB 1 of IS 304
Die castings	: Grade 3 of IS 292
Hot forging	: Grade 1 of IS 291
Gravity die castings	: IS 1264

3.1.2 Aluminium alloys used for casting shall conform to Designation 4450, 4425 or 4600 of IS 617.

3.1.3 Stainless steel used shall conform to Grade 1 or Grade 4 of IS 3444.

3.2 Washer

Washer 'O' ring used shall be of neoprene quality.

3.3 Extension Applicator

It shall be of aluminium alloy tubes conforming to IS 738.

4 SHAPE AND DIMENSIONS

4.1 The typical shape and essential dimensions of the fog nozzle shall be as given in Fig. 1.

4.2 The length of applicator, if used shall not be less than 1.75 m (along central line) and nozzle end shall have a bend of 90° to 100°. The threads at the two ends shall have a length of not less than 20 mm and shall be such as to suit insertion on the body and fitting of nozzle.

5 PERFORMANCE REQUIREMENTS

5.1 The fog nozzle head of the fog nozzle shall have a flow not less than 225 litre/min and jet head of the fog nozzle shall have a flow of not less than 400 litre/min at a pressure of 0.7 MPa at the inlet of the fog nozzle. If the equipment is with applicator, an additional test shall also be conducted with applicator attached to the fog head for the requirement of the fog.

5.2 The fog head on the fog nozzle shall produce a cone (*see 5.2.1*) of high velocity fog comprising of finely atomized droplets of uniform size; at an operating pressure of 0.7 MPa. The discharge pattern of fog shall be such that no pockets are left while it is being used on an inflammable liquid surface.

5.2.1 The angle of the cone of fog produced shall not be less than 90° and not more than 120° at the apex.

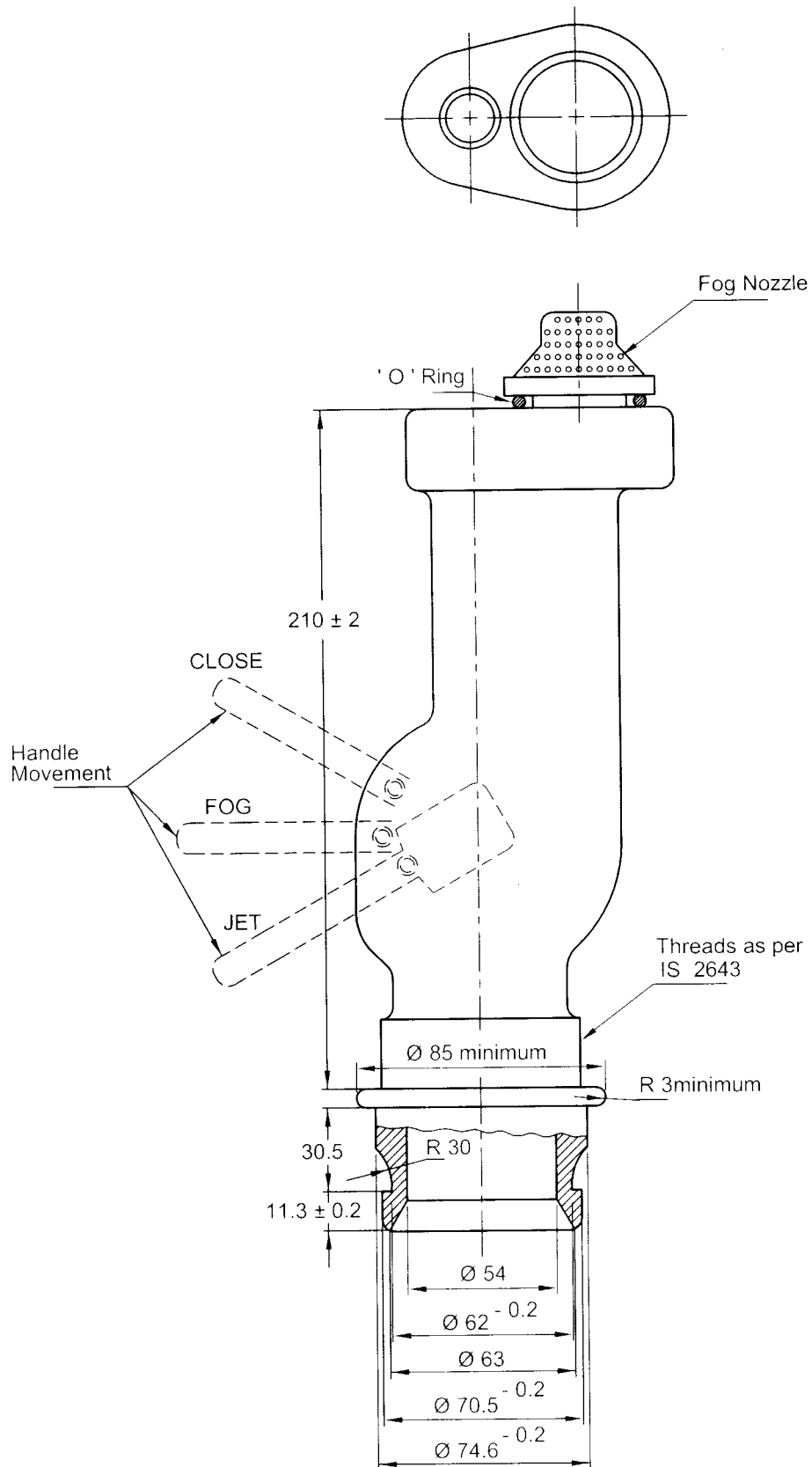
5.2.2 Hydraulic Pressure Test

Each fog nozzle shall be subjected to a hydrostatic pressure of 2.1 MPa by suitable adaptors for a period of 2.5 min for the purpose of locating porosity in the casting and leakage.

5.3 The horizontal reach of the fog pattern shall not be less than 6 m from the fog head on the fog nozzle, in still wind conditions. When the applicator is used, and operated with the applicator head at an approximate height of 2 m, it shall produce a fog pattern of 4.5 m width, on the ground.

6 WORKMANSHIP AND FINISH

All parts shall be of good workmanship and shall be free from burrs and sharp edges. All casting shall be clean and sound and free from plugging, welding or any repaired defects. Copper alloy branches shall be chrome plated, while aluminium alloy branches shall be anodized for improving corrosion resistance and working life.



General Tolerance : ± 0.5

All dimensions in millimetres.

FIG. 1 DETAILS FOR FOG NOZZLE

7 MARKING

7.1 Fog nozzle with its applicator shall be clearly and permanently marked with the following information:

- a) Manufacturer's name or trade-mark;
- b) Year of manufacture; and
- c) Length of applicator, if provided.

7.2 BIS Certification Marking

The fog nozzle may also be marked with the Standard Mark.

7.2.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the license for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

8 CRITERIA FOR CONFORMITY

Each fog nozzle with its applicator shall be checked for the requirements given in this standard.

ANNEX A

(Clause 2)

LIST OF REFERRED INDIAN STANDARDS

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
291 : 1989	Naval brass rods and sections for machining purposes — Specification (<i>third revision</i>)	738 : 1994	Wrought aluminium alloys, drawn tube for general engineering purposes (<i>third revision</i>)
292 : 1983	Specification for leaded brass ingots and castings (<i>second revision</i>)	1264 : 1997	Brass gravity die castings (ingots and castings) (<i>fourth revision</i>)
304 : 1981	Specification for high tensile brass ingots and castings (<i>second revision</i>)	2643 : 2005	Pipe threads where pressure-tight joints are not made on the threads — Dimensions, Tolerances and Designation
318 : 1981	Specification for leaded tin bronze ingots castings (<i>second revision</i>)	3444 : 1999	Corrosion resistant alloy steel and nickel base castings for general applications — Specification (<i>third revision</i>)
617 : 1994	Aluminium and aluminium alloy ingots and castings for general engineering purposes (<i>third revision</i>)		

ANNEX B*(Foreword)***COMMITTEE COMPOSITION****Fire Fighting Sectional Committee, CED 22**

<i>Organization</i>	<i>Representative(s)</i>
Ministry of Home Affairs, New Delhi	SHRI OM PRAKASH (Chairman) SHRI D. K. SHAMI (<i>Alternate</i>)
Agni Controls, Chennai	SHRI D. BALACHANDRAN
Airport Authority of India, New Delhi	SHRI SUBHASH KUMAR SHRI R. BANERJEE (<i>Alternate</i>)
ASKA Equipment Ltd, New Delhi	SHRI ASHOK H. GARG
Bhabha Atomic Research Centre, Mumbai	CHIEF FIRE OFFICER
Bombay Fire Brigade, Mumbai	CHIEF FIRE OFFICER DEPUTY CHIEF FIRE OFFICER (<i>Alternate</i>)
Building Fire Research Centre, Mysore	DR N. SURESH SHRI Y. M. MANJUNATH (<i>Alternate</i>)
Central Building Research Institute, Roorkee	DR M. P. SINGH SHRI SUVIR SINGH (<i>Alternate</i>)
Central Public Works Department, New Delhi	CHIEF ENGINEER SUPERINTENDING ENGINEER (<i>Alternate</i>)
Centre for Fire & Explosive Environment Safety (DIFR), Delhi	DIRECTOR DR K. C. WADHWA (<i>Alternate</i>)
Chennai Petroleum Corporation Ltd, Chennai	SHRI J. P. K. HEPAT
Chhatariya Rubber & Chemicals Industries, Mumbai	SHRI S. A. HAVELIVALA SHRI H. A. CHHATARIYA (<i>Alternate</i>)
Concord Arai Pvt Limited, Chennai	SHRI R. RAMAKRISHNAN
Controllerate of Quality Assurance, Pune	COL L. K. SHARMA LT-COL S. K. TERI (<i>Alternate</i>)
Council of Architecture, New Delhi	PRESIDENT
Defence Research Development Organization, Ministry of Defence, Delhi	SHRIMATI MEENAKSHI GUPTA SHRI B. C. SHARMA (<i>Alternate</i>)
Delhi Development Authority, New Delhi	REPRESENTATIVE
Delhi Fire Service, New Delhi	SHRI R. C. SHARMA SHRI A. K. SHARMA (<i>Alternate</i>)
Directorate of Fire and Emergency Services, Goa	SHRI ASHOK MENON
Electricity Consumer Grievances Redressal Forum, New Delhi	SHRI HEMANT KUMAR
Engineer-in-Chief's Branch, New Delhi	SHRI A. K. SHARMA SHRI A. K. RAY (<i>Alternate</i>)
Engineers India Ltd, New Delhi	SHRI NARESH KAUL SHRI R. B. BHUTDA (<i>Alternate</i>)
F. M. Engineering International India Branch, Bangalore	SHRI VIKRAN KALBAG
Fire Protection Association of India, Mumbai	PRESIDENT
GAIL (India Limited), New Delhi	SHRI S. P. GARG
Government of Maharashtra, Mumbai	FIRE ADVISER
Gunnebo Steelage Industries Ltd, Chennai	SHRI RAJESH KUMAR SHARMA SHRI DINESH BABBAR (<i>Alternate</i>)
H. D. Fire Protect Co, Thane	SHRI HARISH N. DHARAMSHI SHRI K. T. CHAUDHARI (<i>Alternate</i>)
In Time Fire Appliances, Mumbai	SHRI MUKESH SHAH
Indian Oil Corporation Limited, Noida	SHRI T. K. KUMAR

<i>Organization</i>	<i>Representative(s)</i>
Institution of Fire Engineers, New Delhi	PRESIDENT
Karnataka State Fire and Emergency Services, Bangalore	GENERAL SECRETARY (<i>Alternate</i>)
K. V. Fire Chemicals (India) Pvt. Ltd, Navi Mumbai	SHRI B. G. CHANGAPPA SHRI B. K. HAMPAGOL (<i>Alternate</i>)
Kochi Refineries Ltd, Dist. Ernakulam	SHRI RAJESH H. SABADRA SHRI UDAY K. SHROFF (<i>Alternate</i>)
National Fire Service College, Nagpur	SHRI A. K. DAS
National Thermal Power Corporation, New Delhi	DIRECTOR
NEEPCO Limited, Dibrugarh	SHRI D. K. SURYANARAYAN
Newage Industries, Fire Protection Engineers, Surendranagar	SHRI V. S. CHOWDHARY
Oil Industry Safety Directorate, New Delhi	SHRI ASHOK M. SHAH SHRI SHETUL A. SHAH (<i>Alternate</i>)
Peter Autokits Pvt Limited, Mumbai	SHRI B. R. GADEKAR
Prakash Suraksha Devices, Delhi	SHRI J. K. SHAH
Reliance Industries Limited, Jamnagar	SHRI PRAMOD PRAKASH SHRI AMOD PRAKASH (<i>Alternate</i>)
S&P Safety Products Pvt Ltd, Kolkata	SHRI VARADENDRA KOTI SHRI UMESH KHANDALKAR (<i>Alternate</i>)
Safex Fire Services Limited, Mumbai	SHRI TUNIR CHAKRABARTI
Shah Bhogilal Jethalal & Bros, Ahmedabad	SHRI JITENDRA SHAH SHRI SANDIP SHAH (<i>Alternate</i>)
State Bank of India, Mumbai	SHRI MUKESH M. SHAH SHRI ABHAY D. PURANDARE (<i>Alternate</i>)
Steel Authority of India, Bokaro	SHRI J. S. GAHLAUT
Surex Production and Sales Private Limited, Kolkata	SHRI SHYAM NARAYAN SHRI A. RAUTELA (<i>Alternate</i>)
Tariff Advisory Committee, Mumbai	SHRI DEBASHIS NEOGI
TYCO Thermal Controls India Pvt Ltd, Mumbai	SHRI D. K. PODDAR
UL India Pvt Limited, Bangalore	SHRI AJIT RAGHAVAN SHRI VINAYAK JOGLEKAR (<i>Alternate</i>)
Uttar Pradesh Fire Services, Lucknow	DR PRAVINRAY GANDHI SHRI V. JAGDISH (<i>Alternate</i>)
West Bengal Fire and Emergency Service, Kolkata	SHRI D. G. P. KARSOLIA SHRI PRANVENDRA KUMAR ROA (<i>Alternate</i>)
Zenith Fire Services (India) Pvt Ltd, Mumbai	SHRI D. P. BISWAS SHRI G. K. BHATTACHARYA (<i>Alternate</i>)
In personal capacity (<i>P/4 Belgacuta, Kolkata</i>)	SHRI B. C. SHAH SHRI D. C. SHAH (<i>Alternate</i>)
In personal capacity (<i>K-33-A Green Park, New Delhi</i>)	SHRI S. N. KUNDU
In personal capacity (<i>C-127 Kendriya Vihar, Noida</i>)	SHRI S. K. DHERI
In personal capacity (<i>305, SJR Verity, Amrita College Road Kasavanahalli, Bangalore</i>)	SHRI H. S. KAPARWAN
BIS Directorate General	SHRI T. R. A. KRISHNAN
	SHRI A. K. SAINI, Scientist 'F' & Head (Civil Engg) [Representing Director General (<i>Ex-officio</i>)]

Member Secretary

SHRI S. CHATURVEDI
Scientist 'E' (Civil Engg), BIS

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 1986 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publications), BIS.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards: Monthly Additions'.

This Indian Standard has been developed from Doc No.: CED 22 (7582).

Amendments Issued Since Publication

Amendment No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002

Telephones: 2323 0131, 2323 3375, 2323 9402

Website: www.bis.org.in

Regional Offices:

Telephones

Central	: Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	{ 2323 7617 2323 3841
Eastern	: 1/14, C.I.T. Scheme VII M, V.I.P. Road, Kankurgachi KOLKATA 700054	{ 2337 8499, 2337 8561 2337 8626, 2337 9120
Northern	: SCO 335-336, Sector 34-A, CHANDIGARH 160022	{ 260 3843 260 9285
Southern	: C.I.T. Campus, IV Cross Road, CHENNAI 600113	{ 2254 1216, 2254 1442 2254 2519, 2254 2315
Western	: Manakalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400093	{ 2832 9295, 2832 7858 2832 7891, 2832 7892

Branches : AHMEDABAD. BANGALORE. BHOPAL. BHUBANESHWAR. COIMBATORE. DEHRADUN. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. KANPUR. LUCKNOW. NAGPUR. PARWANOO. PATNA. PUNE. RAJKOT. THIRUVANATHAPURAM. VISAKHAPATNAM.